

5(4)

AUTHORS: Mayranovskiy, S. G., Faynzil'berg, SOV/20-125-2-31/64
A. A., Novikov, S. S., Klimova, V. A.

TITLE: On the Influence of Negative Groups on the
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds (O vliyaniy otritsatel'nykh grupp
na elektrokhimicheskoye vosstanovleniye svyazi uglerod -
galoid v organicheskikh soyedineniyakh).
The Polarographic Behavior of Halide-nitroalkanes
(Polyarograficheskoye povedeniye galoidnitroalkanov,

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2.
pp 351-353 (USSR)

ABSTRACT: The present paper deals with the influence exercised by the
nitro groups in α -position on the easiness of the
electrochemical reduction of the carbon-halide bond. Even though
the nitro group itself is easily polarographically reduced,
its presence (as the experiment shows) facilitates the
electrochemical breaking of the C-Hal bond to such an extent
that the wave corresponding to its reduction becomes a wave of
the reduction of the nitro group. The investigation was carried
out by means of the recording polarograph of the TsLA

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On the Influence of Negative Groups on the
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds. The Polarographic behavior of
Halide-nitroalkanes

SOV/20-125-2-31/64

Energochermet (State All-Union Trust for the Design, Planning, Assembly and Adjustment of Power Installations and Control- and Measuring Instruments of the Ministry of Ferrous Metallurgy, USSR). Measures for increasing measuring accuracy are discussed in short. A comparison between the polarograms of the halogenized nitro-compounds and the waves of the analogous nitroproducts containing no halide shows that the first wave of nitrohalide alkanes corresponds to the reduction of the C-Hal bond. This is proved by the independence of $E_{1/2}$ of the first wave of the pH of the solution. The second wave, which corresponds to the reduction of the nitro group, shifts with increasing pH of the solution towards negative potentials. The experimental data corresponding to the reduction of the C-Hal bond are given in a table. In irreducible processes (including the electrochemical reduction of the bond carbon - halide) the potential of the semiwave is only an approximated criterion

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On the Influence of Negative Groups on the
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds. The Polarographic Behavior of
Halide-nitroalkanes

SOV/20-125-2-31/64

of the easiness of the reduction of the C-Hal-bond. The existence of a nitro group in α -position facilitates the reduction of the carbon - halide bond considerably, and the influence exercised by the nitro groups also increases with an increase of their number. As expected, bromides are reduced more easily than the corresponding chlorides. Of the iodides only iodotrinitromethane was investigated. Interest is caused by the variation of the product α_n of the number n of electrons participating in the potential-determining stage of the process and the conversion coefficient in some substances in which the polarity of the C-Hal-bond varies. The influence exercised by the structure of the investigated substance upon α_n of their waves will be investigated in the course of a future investigation. There are 1 table and 10 references, 6 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D.

Card 3/4

On the Influence of Negative Groups on the
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds. The Polarographic Behavior of
Halide-nitroalkanes

SOV/20-125-2-31/64

Zelinskiy of the Academy of Sciences, USSR)

PRESENTED: November 10, 1958, by A. N. Frumkin, Academician

SUBMITTED: November 10, 1958

Card 4/4

5(3)

SCV/20-125-3-26/63

AUTHORS:

Novikov, S. S., Babiyevskiy, K. K., Korsakova, I. S.

TITLE:

The Synthesis of Aci-nitro-alkanes (Sintez atsi-nitroalkanov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 3, pp 560-561 (USSR)

ABSTRACT:

Several examples of the addition of simplest mononitro-alkanes (Refs 1,2) as well as of the 1,1-dinitro-ethane (Ref 3) to the 2-nitro-alkanes are known. The authors assume that trinitro-methane will react with the last mentioned substances more easily than other nitro-alkanes since its hydrogen is more mobile. It was found that this reaction leads to the formation of white crystalline substances in aqueous methanol below 0° if the reaction products are quickly separated by dilution with ice-water. For in this case aci-1,1,1'-tetranitro-alkanes are produced in an almost quantitative yield. Reliable data on the formation of the aci-form of the free aliphatic nitrohydrocarbons have hitherto been lacking. Their structure was now confirmed by an infrared spectrum. The obtained substances yield characteristic color reactions of the aci-nitro compounds: their solutions in ether turn lightblue under the action of acetyl

Card 1/2

The Synthesis of Aci-nitro-alkanes

CCV, 20-125-3-26/63

chloride (Ref 7) and red in the case of additions of FeCl_3 (Ref 8). They may be stored at the temperature of dry ice. Aci-1,1,1,3-tetranitro-butane reacts quickly with bromine in a volatile solution (in the absence of alkalies) and forms 3-bromo-1,1,1,3-tetranitro-butane. An assumed reaction mechanism is illustrated in a diagram. An experimental part gives the usual data. There are 8 references, 1 of which is Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

PRESENTED: November 13, 1958, by A. V. Topchiyev, Academician

SUBMITTED: November 12, 1958

Card 2/2

AUTHORS: Novikov, S. S., Korsakova, I. S.,
Bulatova, N. N.

S/153, 60 003-01/036/058
B011/B005

TITLE: On the Addition of Nitroalkanes to β, β -Dimethyldivinylketone⁷
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya
tekhnologiya, 1960, Vol 3, Nr 1, pp 132-134 (USSR)

TEXT: Although β, β -dimethyldivinylketone contains 2 double bonds, substances with one single mobile hydrogen atom are mainly added to one single nonsubstituted vinyl group under experimental conditions (in accordance with I. N. Nazarov, Ref 2). The presence of double bonds in the addition products of the substances mentioned in the title was proved by hydrogenation of 7-nitro-2-methyl-octen-2-one-4 on Pt-black (see Scheme). Trinitromethane adds easily to β, β -dimethyldivinylketone at room temperature. 7,7,7-trinitro-2-methyl-hepten-2-one-4 (I) is formed here. Dinitromethane reacts with the same ketone at 30-35°. 1,1-dinitroethane reacts slowly with the ketone at room temperature. Diethylamine used as a catalyst accelerates the reaction considerably so that it may be finished within 1-2 h. Nitroethane reacts with ketone at 80° in the presence of diethylamine within 8 h. In consequence of the reaction of nitromethane with β, β -dimethyldivinylketone, a mixture of 2 nitroketones forms in the presence of diethylamine at 75-80° (within 7 h): 7-nitro-2-methyl-hepten-2-one-4 (V) (the reaction product of nitromethane with one ketone molecule) and 7-nitro-2,12-dimethyl-tridecadiene-2,11-dione-4,10 (VI) (the reaction product with 2 ketone molecules). Even with the use of a tenfold excess of nitromethane, a mixture of the two ketones (V and VI) is formed. Besides

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On the Addition of Nitroalkanes to β,β -Dimethyldiviny-
ketone .

3/153/60/003/01/036/058
B011, B005

the nitroalkanes mentioned, the authors investigated the addition of nitroacetic and dinitroacetic ester to β,β -dimethyldivinyketone. Ethyl ester of nitroacetic acid may add to the ketone in the presence of diethylamine at room temperature. Dinitroacetic ester reacts with the ketone without a catalyst under strong development of heat. The yields and properties of the substances obtained are given in a table (p 133). There are 1 table and 3 Soviet references. (✓)

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut
(Moscow Institute of Physics and Engineering)

SUBMITTED: March 18, 1959

Card 2/2

S/153/60/003/02/18/034
B011/B006

5.3200

AUTHORS: Peredreyeva, M. A., Denisenko, Ya. I., Novikov, S. S.
TITLE: Investigation of the Nitration of Hydrocarbons of the
Cyclopentane Series in the Vapor Phase. III Nitration of
Propyl Cyclopentane 4
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskay tekhnologiya, 1960, Vol. 3, No. 2, pp. 312-315

TEXT: The present paper is a continuation of the authors' investigations
on the subject mentioned in the title. The nitration of propyl cyclo-
pentane, which was prepared synthetically, was carried out at 340-400°C
using 68% HNO₃. Details are given in Ref. 1. In the present paper, the
authors clarified the dependence of the yield of nitro compounds on the
reaction temperature, the hydrocarbon / HNO₃ ratio, and the time of
contact of the reagents. Results are shown in Table 1. From this it is
evident that the highest yield at molar ratios of propyl cyclopent-

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Investigation of the Nitration of
Hydrocarbons of the Cyclopentane Series
in the Vapor Phase . III. Nitration of
Propyl Cyclopentane

S/153/60/003/02/18/034
B011/B006

tane/ HNO_3 = 2.1 - 2.5 and contact times of 1.2 - 1.3 sec slowly increases with rising temperature. The maximum yield is obtained at 385°C . At higher temperatures, yields decrease owing to pyrolysis of the nitro compounds. At the above-mentioned optimum conditions, the maximum yield is 76%, calculated for initial hydrocarbon. As main reaction products, a tertiary and a secondary nitro compound are formed. It is seen in Table 2, that the latter is obtained in much greater quantity than the former compound (nearly 40 times as much at 385°C , less at lower temperatures). From the physical constants determined and the results of chemical analysis the authors conclude that the tertiary compound obtained by them is pure 1-nitro-1-propyl cyclopentane. It is a colorless oil with a weak smell of camphor, easily soluble in alcohol and other organic solvents. It is insoluble in bases and does not react with HNO_2 . The constants of the secondary nitro compound show it to be 2-nitro-1-propyl cyclopentane. Freshly distilled in vacuum, it is a colorless oily liquid which becomes yellow on standing in light. Its

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Investigation of the Nitration of
Hydrocarbons of the Cyclopentane Series
in the Vapor Phase . III. Nitration of
Propyl Cyclopentane

3/153/60/003/02/16/034
BO11/BO06

smell is that of nitro-paraffin, and it is soluble in the same solvents as the tertiary compound. The secondary nitro compound however, is soluble in concentrated aqueous alkali solutions and gives the characteristic color reaction with HNO_2 . The corresponding ketone was prepared from the secondary nitro compound and transformed to its semicarbazone. The nitro compounds were reduced to the amines 1-amino-1-propyl cyclopentane and 2-amino-1-propyl cyclopentane ($\text{C}_8\text{H}_{15}\text{NH}_2$). The latter substances are colorless, mobile

liquids which can be distilled at atmospheric pressure without decomposition, smell intensely of ammonia, and are difficultly soluble in water. They are well soluble in ether and other organic solvents, and form volatile carbonates - colorless crystalline substances - with atmospheric CO_2 . The hydrochloride of 2-amino-1-propyl cyclopropane, obtained in a dry HCl atmosphere, is also a colorless crystalline substance. The chloroplatinate of 2-amino-1-propyl cyclopropane is a yellow crystalline substance. There are 2 tables, and 4 references, 2 of which are Soviet.

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Investigation of the Nitration of
Hydrocarbons of the Cyclopentane Series
in the Vapor Phase. III. Nitration of
Propyl-Cyclopentane

S/153/60/003/02/18/034
B011/B006

ASSOCIATION: Artilleriyskaya inzhenernaya akademiya im. F. E. Dzerzhinskogo
Kafedra khimii (Institute for Artillery Engineers imeni
F. E. Dzerzhinskiy, Chair of Chemistry)

SUBMITTED: July 11, 1958

Card 4/4

NOVIKOV, S.S.; GODOVIKOVA, T.I.; TARTAKOVSKIY, V.A.

Synthesis of organomercury nitro compounds. Report No.3: Reactions of the mercuric salt of trinitromethane with nitro derivatives of aromatic compounds. Izv.AN SSSR Otd.khim.nauk no.5: 863-865 My '60. (MIRA 13:6)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo Akademii nauk SSSR.

(Methane) (Nitro compounds) (Mercury compounds)

NOVIKOV, S.S.; KORSAKOVA, I.S.; BABIYEVSKIY, K.K.

Synthesis of 1,4-dinitro-1,3-butadiene. *Izv. AN SSSR Otd. khim. nauk* no. 5:944-945 May '60. (MIRA 13:6)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo Akademii nauk SSSR.

(Butadiene)

NOVIKOV, S.S.; SAFONOVA, E.N.; BELIKOV, V.M.

Chemistry of nitropyrroles. Report No.5: Synthesis of substituted derivatives of dinitropyrroles. Izv.AN SSSR.Otd. khim.nauk no.6:1053-1056 J1 '60. (MIRA 13:7)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR.

(Pyrrole)

SECRET
B0001/RO004

AUTHORS: Belikov, V. M., Maydanovskiy, P. G., Karabentaya, T. P.,
Novikov, S. S., and Klimova, V. A.

TITLE: Tautomerism of Nitro Compounds. Communication I. Study of
the Mechanism of Tautomeric Conversions of Phenyl
Nitromethane

PERIODICAL: Izvestiya Akademii Nauk SSSR, Khimicheskikh
nauk, 1960, No. 1, pp. 1675-1684

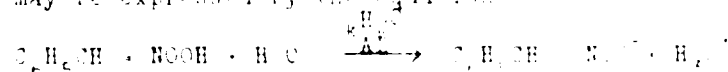
TEXT: The authors investigated the tautomeric conversions of the nitro
compounds as thoroughly as possible by the polarographic method. They
used phenyl nitromethane because its tautomeric conversions proceed
comparatively slowly. They determined the constant (K_H) of the acidic
dissociation of phenyl nitromethane in water by potentiometrically and
polarographically, and obtained $K_H = 1.5 \times 10^{-10}$ mole/l. The dissociation
kinetics of phenyl nitromethane was investigated in buffer solutions at
pH between 7 and 10. The constants of the rate of dissociation were

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Tautomerism of Nitro Compounds. I. Kinetics of Isomerization of Nitrobenzene
Study of the Mechanism of Tautomerism. I. Kinetics of Isomerization of Nitrobenzene
of Phenyl Nitromethane

experimentally determined with all components of the buffer mixtures. The rate of isomerization of phenyl nitromethane was determined at various temperatures.

$k_{\text{H}_2\text{O}} \approx 10^{-7} \text{ min}^{-1}$ was found. The kinetics of the transition from the nitro form to the aci form was also studied at pH between 1 and 2. It was found that the rate of isomerization is independent of the hydrogen ion concentration at pH < 2, and may be expressed by the equation



The rate of isomerization increased with a further increase of pH. In general, the rate of isomerization is determined by the rate of dissociation of the aci form. The constants were obtained in the determination of the dissociation rate of the nitro form, determined with all components of the buffer mixtures. The aci form is a stronger acid than the nitro form. The behavior of the phenyl nitromethane in buffer solutions at pH 4 showed that in the pH range of from 1 to 4 the rate of development of nitro forms is practically independent of the pH of the solution. Also

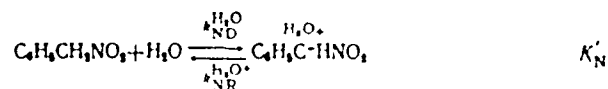
Card 2/4

Tautomerism of Nitro Compounds. Summary: 1. 8/362/80/000/000/000/000/000
Study of the Mechanism of Tautomeric Conversion 2021/2064
of Phenyl Nitromethane

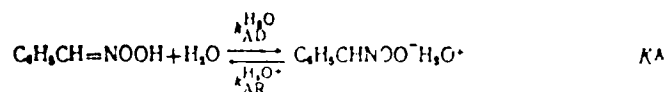
of other tautomeric compounds. G. I. Solov'ev and Ya. S. Babovich (Ref. 1) are mentioned. V. I. Slovetskiy and V. A. Shlyapochnikov have taken the spectra. There are 1 table and 12 references: 3 Soviet, 6 US, 1 German, 1 Danish, and 1 Swedish.

ASSOCIATION: Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: March 24, 1959; completed June 8, 1960



$k_1 \gg k_2 \quad K$



$$K'_N \approx 2 \cdot 10^{-3} \text{ M/l} \quad k_{ND}^{\text{H}_2\text{O}} = 8 \cdot 10^{-7} \text{ s/M} \cdot \text{cek} \quad k_{NR}^{\text{H}_3\text{O}^+} = 200 \text{ s/M} \cdot \text{cek}$$

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$$K_A = 1.3 \cdot 10^{-4} \text{ M/l} \quad k_{AD}^{\text{H}_2\text{O}} = 4.14 \cdot 10^{-5} \text{ s/M} \cdot \text{cek} \quad k_{AR}^{\text{H}_3\text{O}^+} = 18 \text{ s/M} \cdot \text{cek}$$

Tautomerism of Nitro Compounds. Communication 1. S/066, 41/000/002/011/001
Study of the Mechanism of Tautomeric Conversions B021/B064
of Phenyl Nitromethane

further increase of pH, the rate of formation of the nitro form decreases in proportion with the reduction of the acid concentration. In this stage, the rate of formation of the nitro form is determined by the stage of recombination of the anion under the formation of a non-dissociated nitro form. The rates of dissociation and recombination of the nitro form are

all as the rate of dissociation of the aci form were experimentally determined. On the basis of the kinetic analysis of tautomeric conversions of phenyl nitromethane it is found that the anion may appear in two forms: as aci anion and as nitro anion. As a result of the kinetic investigations the authors obtained a picture of tautomeric transformations of phenyl nitromethane in aqueous solution for the special case in which only H_2O ✓

occurs as a base. See Scheme. Thus, it may be concluded that the duality of the reactivity of the phenyl nitromethane ion is apparently due to the coexistence of ions of two types. The isomerization of these ions proceeds at low rates. These rates determine under certain conditions the direction of the reaction to the one or the other side. This phenomenon may, in the authors' opinion, contribute to clarify the duality of the reactivity

Card 3/4

AL853

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000, 000

111360

AUTHOR:

Novikov, S. S., Khmel'itskiy, L. I., and Lubelev, G. V.

TITLE

Reaction of H_2O_2 with aryl nitro-
methanes. Inversion of the Nitro-methyl group into the Trinitromethyl
group

PERIODICAL:

Izvestiya Akademii nauk SSSR, Khimicheskaya fizika i teoreticheskaya khimiya, 1977, No. 10, p. 1741-1742

TEXT: The author showed by experiments that a reaction of m-nitro-
benzonitroli acid with an H_2O_2 excess in dioxane at 50-60°C
yields m-nitrophenyl trinitromethane (100% yield). Herefrom it is
concluded that aryl nitrolic acids are formed as intermediate products
in the formation of aryl trinitromethanes from salts of aryl nitro-
methanes under the action of H_2O_2 . On this basis it was possible to
establish reaction conditions that permit an essential increase in the
yield of aryl trinitromethanes obtained from aryl nitromethane salts. The
method is based on the addition of H_2O_2 in two portions. The first portion

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84853

Reaction of Nitro With Organic Compounds.
Information on Conversion of the
Nitromethyl Group into the Trinitromethyl
Group.

S, Oct/60, 000, 010, 006/0'6
B011, R004

is added under conditions warranting a maximum yield of nitrolic acid, and the second portion is added under the optimum conditions for the conversion of nitrolic acid to aryl trinitromethane. Thus, a 58-60% yield of p-nitrophenyl trinitromethane could be attained, and the p-nitrophenyl trinitromethane hitherto not described could be obtained. The latter can be converted, under the action of an alcoholic leaching solution, into p-nitrophenyl dinitromethane which has hitherto been unknown. The conversion of the nitromethyl group into the trinitromethyl group can also be assumed to take place under the formation of the dinitromethyl group (intermediate stage). In the present investigation, also the salt of m-nitrophenyl dinitromethane was found to give derivatives of trinitromethyl. A formation of the acid-form of aryl dinitromethane as an intermediate stage in the formation reaction of the trinitromethyl derivative from the nitromethyl derivative could not be established, while in the normal form the aryl dinitromethanes do not react with N_2O_4 . The individual methods of synthesis are described.

Part 1, 5

BL853

Reaction of N_2O_4 With Organic Compounds.
Information 4. Conversion of the
Nitromethyl Group Into the Trinitromethyl
Group

S, 062, 60, 000/010/006/018
B015, B064

There are 9 references: 3 Soviet, 2 Italian, 1 US, 1 German, and 1 British.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N. D.
Zelinskiy of the Academy of Sciences USSR)

SUBMITTED. May 27, 1959

Card 3,3

0051

2,042/00,000,010,001 3/4
0051/0004

11/360

ATTN: 3

Maynovskiy, S. I., Belikov, I. B., Gornostayev, V. B.,
Gladkov, V. A., and Gornostayev, V. B.

Properties of Nitroethane. Information 1. Polarographic
Investigation of the Reaction of Nitroethane with
Phenyl Nitroethane

PHARMACEUTICAL. Investigative Institute of the USSR Ministry of Health, Moscow.

1962, No. 10, pp. 1757-1759.
This is a previous investigation (Ref. 1) of the polarographic activity
of the nitro-form of phenyl nitroethane and its derivatives. The present
paper describes the technique applied and gives the experimental data
obtained. The polarographic behavior of the nitro-form and nitro-forms of phenyl
nitroethane was investigated. It was found that the nitro-form of phenyl
nitroethane is transformed into the nitro-form of phenyl nitroethane at pH 4-6. Moreover,
of the nitro-form into the nitro-form at pH 4-6. Moreover,
at pH 4-6, and the nitro-form into the nitro-form at pH 4-6. Moreover,
the dissociation constants of the nitro-form and nitro-forms were

Card 1/3

Polarographically and potentiometrically determined. The experiments were
conducted in an optical polarograph, and the current was measured with a
model (M-3) microammeter. The potential of the dropping electrode was
adjusted with an $\text{Ag}^+/\text{AgCl}^-$ electrode, and determined with a potentiometer.
The experiments were carried out at 25°C in a 0.1M sodium acetate and
sodium chloride buffer solution, and the pH was determined with a glass electrode and
AN-5 (M-5) or AN-59 (M-59) potentiometer. The dissociation constants of the
nitro-form at pH 4-6 are $K_1 = 10^{-4.5}$ and $K_2 = 10^{-5.5}$ for the nitro-form and $K_1 = 10^{-4.5}$
for the nitro-form. Investigations of the dissociation constants showed that
the ionization of phenyl nitroethane in buffer solution can be described
by an equation of the first order. The ionization rate constant of the nitro-form
is the presence of various bases. The rate of transformation of a reaction
form into the nitro-form was found to be independent of the concentration
of the first order throughout the pH range investigated. Investigations
on the recombination kinetics of the nitro-form and the nitro-form showed that at
pH 4-6 the dissociation of the nitro-form and the recombination of the
nitro-form take place simultaneously. The values for the dissociation

Card 2/3

constants of the nitro-form and nitro-forms after the addition of bases and acids
were computed with the help of a digital calculator. The authors thank
the authors thank the authors for their assistance in the preparation of the
manuscript and for the references 1-3.

ASSOCIATION: Institute of Organic Chemistry, USSR Academy of Sciences, Moscow.
Card 3/3
Originally published in Zhurnal Khimicheskoi Fiziki, 1962, 36, 1757-1759.

SUBMITTED: March 24, 1962

Card 1/3

S 362/40 000 010 025/031/XX
R000 R010

RS: Yevseyev, S. S., Shvekhgamer, G. A., and Dufinskaya, A. A.

1. Condensation of Hexachlorocyclopentadiene With Unsaturated Nitro Compounds

1963, Izvestiya Akademii nauk SSSR, Khimicheskaya fizika, No. 10, pp. 1963-1965

ABSTRACT: Two types of nitro compounds may be used for the condensation of hexachlorocyclopentadiene with unsaturated nitro compounds: 1) $\text{CH}_2=\text{CHNR}$ where R may be H , NO_2 , or OOCCH_3 ; or 2) $\text{CH}_2=\text{CHNR}$ where R may be hydrogen, alkyl, aryl, or OOCCH_3 . For steric reasons, a condensation with unsaturated hydrazide compounds is scarcely possible. It is believed on the basis of studies of isopropylpropylene (Ref. 1) that the reaction with unsaturated unsaturated nitro compounds is likewise fairly possible, while the reaction with unsaturated nitro compounds is less probable. Experimental results have fully confirmed these theoretical predictions.

Condensation of Hexachloro Cyclopentadiene With 3-Nitro-1,2-Epoxypropane
Unsaturated Nitro Compounds

RUSS. ENG.

Condensation of 3-nitro-1,4,5,6,7,7-hexachloro bicyclo-[2,2,1] heptene-5 was synthesized in a good yield by 14 hours' heating a solution of nitro-ethylene and hexachloro cyclopentadiene in chloro benzene at 100-102°C. The condensation products of hexachloro cyclopentadiene with 2-nitro-ethyl ester of acrylic acid, 2,4-dinitro-propyl ester of acrylic acid, 2,4,6-trinitro-ethyl ester of acrylic acid, and 2,4,6-trinitro-phenyl ester of acrylic acid were synthesized in a similar manner. On the other hand, it was not possible to perform a reaction of hexachloro cyclopentadiene with 6-nitro-styrene, 3-nitro-acrylic acid methyl ester, 1-nitro-propylene-1, 2-nitro-propylene-1, or 3-nitro-acrylic acid nitrile. A toxicological study conducted by N. M. Permyakova showed that all of the condensation products have an irritant effect. There are 4 non Soviet references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskoy Akademii nauk SSSR (Institute of Organic Chemistry im. N. D. Zelinskoy of the Academy of Sciences USSR)

SUBMITTED: May 15, 1959

Card 2/2

3/04/86 001/010/007, 011, XX
 1004, 1005

AUTHORS: Novikov, S. S., Barmintseva, M. S., and Gorelik, V. P.

TITLE: Condensation of Nitroalkanes With 2,2-Dimethyl-3-hydroxy
 Propionaldehyde and 2,2-Dimethyl-3-hydroxy Butyraldehyde

EDITORIAL: Izvestiya Akademii nauk SSSR. Sibirskoye khimicheskikh nauk,
 1979, No. 10, pp. 1876-1879

TEXT: The condensation of CH_3NO_2 , $\text{C}_2\text{H}_5\text{NO}_2$, and $\text{C}_3\text{H}_7\text{NO}_2$ with acetaldo-
 l has been investigated by the authors in a previous paper (Ref. 1). The correspond-
 ing mononitroalcohols and, by dehydration, the corresponding nitrodienes were
 obtained in the presence of $\text{Ba}(\text{OH})_2$. The article under consideration deals
 with attempts made at the condensation of nitroalkanes with 2,2-dimethyl-
 3-hydroxy propionaldehyde (P) and 2,2-dimethyl-3-hydroxy butyraldehyde (B).
 Nitromethane was condensed with (P) by adding drops of aldehyde dissolved
 in nitromethane to a mixture of nitromethane and $\text{Ba}(\text{OH})_2$ at 20°C. Dilution was
 carried out after 24 days, followed by neutralization with H_2SO_4 and extraction
 with CH_2Cl_2 .

1) nitro-3,3-dimethyl butanedial-1 was obtained by recrystallization from ether; colorless crystals, melting point $37-37.5^{\circ}\text{C}$. 2) Bubbling of the ethereal solution of this compound with ketene, and distillation of the acetylation product in vacuum gave 1-nitro-3,3-dimethyl-4-acetoxy butene-1 (melting point 35°C at 1 mm Hg). 3) Condensation of 1,1-dinitro ethane with (P) performed in the same manner gave a viscous oil from which no substance could be crystallized or distilled off. Treatment of this oil with acetylpyrrole in the presence of H_2SO_4 led to an unidentifiable mixture. 4) The same negative results were obtained by condensation of dinitro methane with (P). Condensation of CH_3NO_2 with (P) in methanol solution and in the presence of $\text{Ba}(\text{OH})_2$ performed as under 1), yielded 1-nitro-3,3-dimethyl pentanedial-2; 4;

boiling point $83-85^{\circ}\text{C}$ at 2 mm Hg. Saturation of this compound with ketene and cooling with ice water led to 1-nitro-3,3-dimethyl-4-acetoxy pentene-1 (boiling point 85°C at 1.5 mm Hg). 1-nitro-3,3-dimethyl-4,4-diacetoxy pentane was separated at the same time (boiling point $114-115^{\circ}\text{C}$ at 1.5 mm Hg).

Part 2.3

Reaction of Nitroalkanes With 2,2-Dimethyl- 3,062/03/000/010/027, 011, XX
 1,3-bis(hydroxymethyl)propane and 2,2-Dimethyl- 8014, 8015
 1,3-bis(hydroxymethyl)propane

Attempt of converting these compounds into 1-nitro-1,1-dimethyl penta-
 methylol distillation with CH_3COONa was not successful. There is 1 Soviet
 reference.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
 nauk SSSR
 (Institute of Organic Chemistry named N. D. Zelinskiy of the
 Academy of Sciences USSR)

SUBMITTED: March 3, 1960

Page 3

S/062/60/100/011/002/016
BC11/BC78

AUTHORS: Khmel'nitskiy, L. I., Novikov, S. S., Lebedev, G. V.

TITLE: Reaction of N_2O_4 With Organic Compounds. 5. Aryl Nitrolic Acids, Preparation of Aryl Nitro Methanes From Them, Single-stage Synthesis of Aryl Nitro Methanes From Aryl Aldoximes

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 11, pp. 2019 - 2025

TEXT: The investigation of aryl nitrolic acids as well as of the methods of preparation of aryl nitro methanes is continued in this paper. A new method of preparation of aryl nitrolic acids through the action of N_2O_4 on aryl nitro methane salts has been found. It was shown that aryl nitrolic acids may exist in two types which differ according to their physical and some chemical properties. The formation of one or the other type as well as both types simultaneously depends on the method of preparation. These phenomena were thoroughly investigated in the case of p-nitro

Card 1/4

Reaction of N_2O_4 With Organic Compounds.

S/C62,60/000/011/003/016
BO13/BO78

5. Aryl Nitrolic Acids, Preparation of Aryl Nitro Methanes From Them, Single-stage Synthesis of Aryl Nitro Methanes From Aryl Aldoximes

benznitrolic acid. Type (I) is a pale-yellow substance with a melting point at 60° - 61° C (under decomposition). It is easily soluble in alkalis and alkali carbonate solutions. (I) forms, when acidifying a solution of p-nitrophenyl nitro methane potassium salt and -nitrate with oxalic acid. Type (II) is an almost colorless crystalline substance with a melting point at 52° - 53° C. In alkalis or alkali carbonate solutions it is immediately converted into a high meltable product without passing into solution. It forms under the action of N_2O_4 upon a suspension of p-nitrophenyl nitro methane potassium salt in ether. By the action of 0.5 M N_2O_4 upon the ether solution of p-nitro benzaldoxime there forms an almost inseparable mixture from both forms. When applying the first mentioned two methods, m-nitro benznitrolic acid will only be obtained in type (I). From the oxime it will be separated like p-chloro benz-nitrolic acid as a mixture of both forms. With a repeated recrystallization of the mixture of (I) and (II) of p-chloro benznitrolic acid one

Card 2/4

Reaction of N_2O_4 With Organic Compounds.

S/001/01/001/011/001/010
B013/B078

5. Aryl Nitrolic Acids, Preparation of Aryl Nitro Methanes From Them. Single-stage Synthesis of Aryl Nitro Methanes From Aryl Aldoximes

obtains type (II) with a melting point at $76^{\circ}-77^{\circ}C$. Type (I) was obtained by acidification of the alkaline mixture solution after this had been filtered off from the decomposition products of (II). o-nitro benzal-doxime with N_2O_4 gives rise to type (I) only. The existence of two types of aryl nitrolic acids can be explained by syn-anti-isomerism. Melting points of the obtained aryl nitrolic acids and their benzoyl derivatives are mentioned in the table. The conversion of nitrolic acid into aryl nitro methane in the presence of N_2O_4 was investigated with p-chloro-, o-nitro-, and p-nitro benznitrolic acids. p-chloro- and p-nitro benz-nitrolic acids (I and II) with N_2O_4 give rise to respective aryl nitro methanes in good yields. o-nitrophenyl trinitro methane could not be obtained by the action of N_2O_4 upon o-nitro benznitrolic acid. Based on findings, the method of a single-stage synthesis of aryl nitro methanes from aryl alloximes was developed. It consists in adding N_2O_4 twice.

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Reaction of N_2O_4 With Organic Compounds.

S/068/60/000/C11/009/C16

5. Aryl Nitrolic Acids, Preparation of Aryl

BC13/BC78

Nitro Methanes From Them, Single-stage Synthesis of Aryl

Nitro Methanes From Aryl Aldoximes

The first portion is added under the condition that it guarantees the maximum yield of nitrolic acid. The addition of the second portion takes place under the optimum conditions for the conversion of nitrolic acid into aryl nitro methane. There are 1 table and 5 references: 3 Soviet.

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Akademii nauk SSSR (Institute of Organic Chemistry imeni
N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: May 27, 1959

Card 4/4

NOVIKOV, S.S.; SHVEKHGEYMER, G.A.

New steps in the synthesis of β -halonitroalkanes. Izv. Ak. SSSR.
Otd. khim. nauk no.11:2026-3021, '60. (MIRA 13:11)

1. Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Paraffins)

NOVIKOV, S.S.; FAYNZIL'BERG, A.A.; SHVEDOVA, S.M.; GULEVSKAYA, V.I.

Condensation of α -dinitroalkanes with aliphatic aldehydes and amines. Izv. AN SSSR. Otd. khim. nauk no.11:2056-2058 M '60.

(MIRA 13:11)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins) (Aldehydes) (Amines)

NOVIKOV, S.S.; SHVEYKINSEYMER, G.A.

Synthesis of aromatic nitro ketones and nitro nitriles by the
Wittig reaction. Izv. AN SSSR. Otd. khim. nauk no. 11:2061-2063
N '60. (MIRA 13:11)

1. Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR.
(Ketones) (Nitriles)

1(3)

AUTHOR: Novikov, S. S., Shvokhgymmer, G. A., S, 074, 60/029/02, 003/007
Dudinskaya, A. A. BC08/B001

TITLE: Nitro Compounds in Diene Synthesis

PERIODICAL: Uspekhi Khimii, 1960, Vol 29, Nr 2, pp 187-219 (USSR)

ABSTRACT: This is a survey of the papers on diene synthesis with special attention to the problems of stereochemistry and the chemical properties of adducts obtained from unsaturated nitro compounds. Tables are enclosed which show all papers on diene synthesis of nitrodienes and nitrophylodienes published until 1959 inclusive. The mechanism of the reaction discovered by Diels and Alder is explained (Refs 12-25). The effect of the nitro group on the diene system was treated in the papers (Refs 21, 26-30). The presence of the nitro group, conjugated with the double bond, in phylodiene facilitates the diene synthesis. The following unsaturated nitro compounds were used as phylodienes in the reaction according to Diels-Alder: nitroethylene, its homologs and derivatives, *o*-nitro-styrene, its homologs and derivatives, and 1-1-dinitroethylene (Refs 1,4,7-9, 31-53). Adducts, which

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Nitro Compounds in Diene Synthesis

3/074/60/029/02/003/007

B008/B001

are formed on condensation of nitroolefins with dienes, contain one nitro group and one double bond. Thus, it is possible to obtain three different products on hydrogenation of the adduct: ✓
saturated nitro compound, saturated and unsaturated amines. Since the synthesis of these products is of importance in proving the configuration, methods for the selective hydrogenation of the adducts being formed are included in this paper. These methods are treated in references 2, 52-54. Ye.G. Katayev, and P. S. Matveyeva are mentioned. There are 3 tables and 56 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii AN SSSR im. N. D. Zelinskogo
(Institute of Organic Chemistry AS USSR imeni N. D. Zelinskiy)

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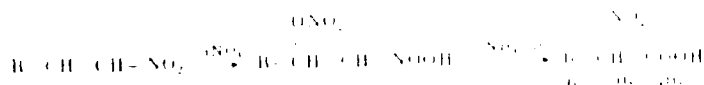
5.31.0

AUTHORS: Belikov, V. M., Yanina, L. A., N. I. M. 1977

TITLE: Concerning the Action of Nitric Acid on Nitroethene

PERIODICAL: Zhurnal Obshchei Khimii, 1977, 47, No. 10, 1977-1978 (USSR)

ABSTRACT: The action of HNO₃ on nitroethene, 1-nitro-1-propene, 1-nitro-2-propene, 1-nitro-2-butene, 1-nitro-3-butene, 1-nitro-2-pentene, 1-nitro-3-pentene, and nitroethylene, was investigated. The nitrates of Cl- and Br- acids were obtained as final products. From nitroethene the nitrate of Cl- acid was obtained (I) and, from nitropropene, the nitrate of Br- acid (II). Nitroethylene formed a complex product. An attempt to isolate a 1,2-dinitro compound was unsuccessful. The reaction products are as follows:



Card 1/c

Concerning the Action of Nitric Acid
on Nitroolefins

1959
G. I. Kuznetsov, L. I. Kuznetsova

Compound (I) was obtained from 2,3-dinitro-1-butene, n_D^{20} 1.460, d_4^{20} 1.000, and (II) from 2,3-dinitro-2-butene, n_D^{20} 1.460, d_4^{20} 1.000. There are no references, 1 U.S., 1 French, 1 U.K., 1 D.P., and 1 K.K. references are: N. Kuznetsov, E. Kuznetsov, *Chem. Zvesti.*, 23, 494 (1958); F. P. Kuznetsov, *Chem. Zvesti.*, 34, 879 (1959).

ASSOCIATION: Institute of Organic Chemistry, Academy of Sciences,
USSR (Institut organicheskoy khimii Akademii nauk SSSR)

SUBMITTED: January 14, 1959

Card 2/2

S/020/60/132/04/31/064
B011/B003

5.3610

AUTHORS: Novikov, S. S., Faynzil'berg, A. A., Shevelev, S. A.,
Korsakova, I. S., Babiyeviskiy, K. K.

TITLE: Isomerization of Tetranitroalkanes

PERIODICAL: Doklady Akademii nauk SSSR. 1960 Vol 133. No. 4.
pp. 846-849

TEXT: In the article under review the authors found that 1,1,1,3-tetra
nitropropane is isomerized to a symmetrical tetranitropropane (II)
not only in the presence of ammonia but also by the action of some
other alkaline agents such as potassium acetate and -methylate. The
nature of the solvent determines the course of reaction. In alcohol
the reaction of 1,1,1,3-tetranitropropane leads to isomerization
with potassium acetate, thus forming 1,1,3,3-tetranitropropane (yield
33.4 per cent). Isomerization does not occur in an alcohol-acetone
mixture; only the nitro group is split off, and 1,1,3-trinitropropane
is obtained. In the presence of potassium methylate (in methanol),
1,1,1,3-tetranitropropane (I) is isomerized to the symmetrical

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Isomerization of Tetranitroalkanes

S/020/60/132/04/31/064
B011/B003

tetranitropropane (II) in a yield of 10.8 per cent. The authors wanted to see whether isomerization is only characteristic of 1,1,1,3-tetranitropropane. For this purpose they studied the behavior of 1,1,1,3-tetranitrobutane and 1,1,1,3-tetranitropentane toward bases. Unlike 1,1,1,3-tetranitropropane, these two tetranitroalkanes occur in two stable forms, a true and an acy form (see Scheme). The authors found that the acy form of tetranitrobutane (IIIa) may be easily isomerized to 1,1,3,3-tetranitrobutane (V) by the action of potassium acetate in alcohol (yield 34.5 per cent). Potassium methylate in methanol (yield 36.7 per cent) and alcoholic caustic potash (yield 12.1 per cent) have a similar effect. Isomerization also occurs in the presence of dimethylamine, but its yield does not exceed a few per cent. The true form of 1,1,1,3-tetranitrobutane (III b) is isomerized to 1,1,3,3-tetranitrobutane by the action of potassium acetate (yield 34.5 per cent); but unlike the acy form, not in the presence of potassium methylate. The acy form of 1,1,1,3-tetranitropentane (IV a) may be isomerized in the way described above, but only in the presence of potassium acetate. Thus, 1,1,3,3-tetranitropentane (VI) (yield 14.5

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Isomerization of Tetranitroalkanes

S/020, 60/132/04/11/064
B011, B003

per cent) is formed. The true form of 1,1,1,3-tetranitropentane (IV b) cannot be isomerized in the presence of alkaline agents. 1,1,1,3-tetranitrobutane and 1,1,1,3-tetranitropentane (both acy and true forms) are not isomerized either in the presence of ammonia. The authors establish that the acy forms isomerize more readily than the true forms. For this reason they assume that the isomerization of 1,1,1,3-tetranitroalkanes passes through the stage of the acy form. The isomerization products of (II), (III), and (VI) were obtained as potassium salts. By the action of bromine they were converted into the corresponding bromides. On the strength of the results obtained the authors draw the conclusion that isomerization accompanied by a shift of the nitro group represents a general reaction of the 1,1,1,3-tetranitroalkanes having a straight chain of carbon atoms. There are 3 references, 2 of which are Soviet.

ASSOCIATION. Institut organicheskoy khimii im N. D. Zelinskogo
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Card 3/4

Isomerisation of Tetranitroalkanes

S/020/60/132, 04/31/064
B011/B003

PRESENTED January 9, 1960, by A. V. Topchiyev Academician

SUBMITTED January 9, 1960

Card 4/4

81417

S/020/60/132/06/42/068

B004/B005

5.4130

AUTHORS:

Shidlovskaya, A. N., Syrkin, Ya. K., Corresponding Member
AS USSR, Novikov, S. S., Faynzil'berg, A. A.,
Sevast'yanova, V. V., Gulevskaya, V. I.

TITLE:

Dipole Moments of Some Halogen Polynitroalkanes

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 6,
pp. 1376 - 1377

TEXT: To investigate the effect of an accumulation of nitro groups for polarity and chemical properties, the authors measured the dipole moments of the compounds $\text{CCl}(\text{NO}_2)_3$, $\text{CBr}(\text{NO}_2)_3$, $\text{CI}(\text{NO}_2)_3$, $\text{CH}_3\text{C}(\text{NO}_2)_3$, $\text{CH}_3\text{CH}(\text{NO}_2)_2$, $\text{CH}_3\text{CBr}(\text{NO}_2)_2$, $\text{CH}_3\text{CCl}(\text{NO}_2)_2$, and $\text{CH}_3\text{CHBr}(\text{NO}_2)_2$ in benzene at 25°C by the heterodyne method. Table 1 lists the investigated concentrations of substances, the sum of atomic and electron polarization, and the dipole moments. A comparison of the dipole moments of CH_3X and $\text{CX}(\text{NO}_2)_3$ (X = halogen) shows, for the halogen trinitromethanes, a small negative

Card 1/3

91417

Dipole Moments of Some Halogen Polynitroalkanes S/020/60/132/06/42/068
B004/B005

charge in the chlorine compound, a small positive charge in the bromine-, and a strong positive charge in the iodine compound. In the C-I bond, the iodine is the positive end of the dipole. This is explained by the fact that in the presence of three C-NO₂ bonds the interaction between I and C is not limited to the formation of the C⁺-I⁻ bond. Iodine acts here as a donor of its undivided p-electron pair, and effects a further shift of electrons, and a partial transition of nitro groups into nitrito groups. This explains the chemical properties of halogen trinitromethanes described in Refs. 2-5. Besides, the methyl group becomes more positive by the vicinity of the three NO₂ groups which circumstance explains the behavior of 1,1,1-trinitroethane which is easily transformed (Ref. 6) into 1,1-dinitroethylene. The dipole moments of some geminal dinitro compounds are calculated from the experimental data. Also here a considerable decrease of the dipole moment of the carbon-halogen bond results in agreement with the experiment. There are 1 table and 6 references: 2 Soviet, 1 British, 1 German, and 2 American.

Card 2/3

01417

Dipole Moments of Some Halogen Polynitroalkanes S/020/60/132/06/42/068
B004/B005

ASSOCIATION: Institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova ✓
(Institute of Fine Chemical Technology imeni M. V. Lomonosov).
Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N.D.Zelinskiy
of the Academy of Sciences, USSR)

SUBMITTED: February 14, 1960

Card 3/3

DUDINSKAYA, A...; SHVINGELMAN, G...; KOVILOV, S.S.; SLOVITSKIY, V.I.

Influence of the configuration of the nitrophilodienes $R-C\equiv CH-NO_2$
on their condensation with cyclopentadiene. Izv. AN SSSR. Otd.
khim. nauk no. 1:182-184 Jan '61. (MIRA 14:2)

1. Institut organicheskoy khimii im. I.D. Zelinskogo AN SSSR.
(Cyclopentadiene)

SLOVETSKIY, V.I.; SHLYAPOCHNIKOV, V.A.; SHEVELEV, S.A.; FAYNZIL'BERG, A.A.;
NOVIKOV, S.S.

Molecular absorption spectra of nitro alkanes. Izv. AN SSSR. Otd.
khim. nauk no.2:330-337 F '61. (MIRA 14:2)

1. Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Paraffins---Spectra)

NOVIKOV, S.S.; SHVEKHGEYMER, G.A.; PYATAKOV, N.F.

Interaction of β -nitro alcohols and ethoxyacetylene. Izv. AN
SSSR. Otd. khim. nauk no.2:375-376 F '61. (MIRA 14:2)

1. Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Alcohols) (Ether)

NOVIKOV, S.S.; BRUSNIKINA, V.M.; RUDENKO, V.A.

Synthesis of some derivatives of 1-benzyl-1, 2, 3-triazole. Izv. AN
SSSR Otd. khim. nauk no. 3: 474-477 Mr '61. (MIRA 14:4)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.
(Triazole)

KHMELE'NITSKIY, L.I.; NOVIKOV, S.S.; LEBEDEV, OV.

Interaction between N_2O_4 and organic compounds. Report No.6:
Arylnitronitrosomethanes and mechanism of the reaction between
 N_2O_4 and aromatic compounds containing an acinitro or isonitroso
group in the side chain. Izv.AN SSSR Otd.khim.nauk no.3:477-482
Mr '61. (MIRA 14:4)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Methane) (Nitrogen oxide)

DUDINSKAYA, A.A.; SHVEKHGEYMER, G.A.; NOVIKOV, S.S.

Condensation of piperylene with nitro olefins. Izv. AN SSSR. Otd.
khim. tekhn. no. 3:522-523 Mr '61. (MIRA 14:4)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.
(Piperylene) (Olefins)

BEL'CHEV, F.V.; SHUYKIN, N.I.; NOVIKOV, S.S.

Catalytic amination of alcohols. Izv.AN SSSR Otd.khim.nauk no.4:
649-652 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Amination) (Alcohols)

NOVIKOV, S.S.; FAYNZIL'BERG, A.A.; GULEVSKAYA, V.I.; SEVOST'YANOVA, V.V.

Synthesis and quantitative determination of α -halo nitro compounds.
Izv.AN SSSR Otd.khim.nauk no.4:672-677 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitro compounds)

KHMELE'NITSKIY, L.I.; LEBEDEV, O.V.; SLOVETSKIY, V.I.; NOVIKOV, S.S.

Reactions of N_2O_4 with organic compounds. Report No. 7: Syn-anti isomerism of aryl nitrolic acids. Izv. AN SSSR Otd. khim. nauk no. 4: 678-683 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR.
(Nitrogen oxide) (Nitrolic acid)

SLOVETSKIY, V.I.; FAYNZIL'BERG, A.A.; GULEVSKAYA, V.I.; NOVIKOV, S.S.

Molecular absorption spectra of α -halo nitro alkanes. Izv.AN SSSR
Otd.khim.nauk no.4:683-690 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins--Spectra)

NOVIKOV, S.S.; SHVEKHGEYMER G.A.; DUBINSKAYA, A.A.

Condensation of cyclopentadiene with mono- and disubstituted nitro
olefins. Izv.AN SSSR Otd.khim.nauk no.4:690-695 Ap '61.
(MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Cyclopentadiene) (Olefins)

NOVIKOV, S.S.; BURMISTROVA, M.S.; GORELIK, V.P.; CHKHIKVADZE, Yu.G.

Condensation of nitro alkanes with acetaldehyde. Izv.AN SSSR Otd.
khim.nauk no.4:695-698 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins) (Acetaldehyde)

PEREDREYEVA, M.A.; DENISENKO, Ya.I.; NOVIKOV, S.S.

Vapor-phase nitration of hydrocarbons of the cyclopentane series.
Part 4: Nitration of butylcyclopentane. Izv.vys.ucheb.zav.; khim.
i khim.tekh. 4 no.6:977-980 '61. (MIRA 15:3)

1. Artilleriyskaya inzhenernaya akademiya imeni F.E.Dzerzhinskogo,
kafedra khimii.

(Cyclopentane) (Nitration)

NOVIKOV, S.S.; SHVEKHGEYMER, G.A.; PYATAKOV, N.F.

Addition of nitrile chloride to acrylic and methacrylic acids
and their derivatives. Izv.AN SSSR.Otd.khim.nauk no.5:914-915
My '61. (MIRA 14:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitriles) (Acrylic acid) (Methacrylic acid)

TARTAKOVSKIY, V.A.; NOVIKOV, S.S.; GODOVIKOVA, T.I.

Synthesis of organomercury nitro compounds. Report 4: Addition of trinitromethane mercury salt to unsaturated hydrocarbons. Izv.AN SSSR. Otd.khim.nauk no.6:1042-1049 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitroform) (Olefins)

BELIKOV, V.M.; MAYRANOVSKIY, S.G.; KORCHEMENAYA, TS.B.; NOVIKOV, S.S.

Tautomerism of nitro compounds. Report 3: Effect of temperature and ionic strength of solutions on the rates of phenylnitromethane tautomeric transitions. Izv. AN SSSR, Otd. khim. nauk no. 6: 1108-1111 Je '61.
(MIRA 14:6)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Methane) (Tautomerism)

NOVIKOV, S.S.; RUDENKO, V.A.; BRUSNIKINA, V.M.

Aminotriazoles in the Mannich reaction. Izv.AN SSSR, Otd.khim.nauk
no.6:1148-1149 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Triazole)

SLOVETSKIY, V.I.; SHEVELEV, S.A.; FAYNZIL'BERG, A.A.; NOVIKOV, S.S.

Dissociation constants of gem-dinitroalkanes. Zhur. VkhO 6 no.6:
707-708 '61. (MIRA 14:12)

1. Institut organicheskoy khimii imeni V.D.Zelinskogo AN SSSR.
(Paraffins) (Dissociation)

SLOVETSKIY, V.I.; SHEVELEV, S.A.; FAYNZIL'BERG, A.A.; NOVIKOV, S.S.

Dissociation constant of trinitromethane. Zhur.VKHO 6 no.5:599-
600 '61. (MIRA 14:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii
nauk SSSR.

(Nitroform)

NOVIKOV, S.S.; BABIYEVSKIY, K.K.; SHLYAPOCHNIKOV, V.A.

Synthesis and spectra of deuterio-nitroform. Dokl. AN SSSR
141 no.4:875-876 D '61. (MIRA 14:11)

1. Institut organicheskoy khimii AN SSSR. Predstavleno akademikom
A.V. Topchiyevym.

(Nitroform--Spectra) (Deuterium compounds)

NOVIKOV, S. S.; KORSKOVA, I. S.; BULATOVA, N. N.

Addition of nitroalkanes to chloromethylvinyl ketone. Izv.
vys. ucheb. zav.; khim. i khim. tekhn. 5 no. 5:753-755 '62.
(MIRA 16:1)

1. Moskovskiy inzhenerno-fizicheskiy institut.

(Paraffins) (Ketone)

NOVIKOV, S.S.; TARTAKOVSKIY, V.A.; GODOVIKOVA, T.I.; GRIBOV, B.G.

Synthesis of organomercuric nitro compounds. Report No.5:
Addition of mercuric salt of trinitromethane to unsaturated
alcohols. Izv. AN SSSR Otd.khim.nauk no.2:272-276 F '62.
(MIRA 15:2)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Mercury organic compounds)
(Nitroform)
(Olefins)

NOVIKOV, S.S.; TARTAKOVSKIY V A.; GODOVIKOVA, T I.; GRIBOV, B.G.

Synthesis of organomercuric nitro compounds. Report No.6:
Mechanism of the direct addition mercury salt of
trinitromethane to the double bond. Izv. AN SSSR Otd.khim.
nauk no.2:276-281 F '62. (MIRA 15:2)

1. Institut organicheskoy khimii im. N.E.Zelinskogo AN SSSR.
(Mercury salts)
(Unsaturated compounds)
(Nitroform)

33986

S/062/62/000/002/011/013

B117/B138

11 2122

11. 1260

11. 1260

AUTHORS: Slovetzkiy, V. I., Shevelev, S. A., Faynsil'berg, A. A. and
Novikov, S. S.

TITLE: Destructive effect of light on aliphatic nitro-compounds

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh
nauk, no. 2, 1962, 359 - 360

TEXT: In a study of the spectra of nitro-compounds it was found that nitro-alkanes and their salts are destroyed by light. A sample placed in a standard cuvette was illuminated by the lighting unit of an KCI-51 (ISP-51) apparatus. The wavelength of the mercury line examined was separated with standard light filters. To secure a standard amount of light energy during the experiments, the less intense lines were irradiated longer: 405 $\text{m}\mu$ - 10 hr; 436 $\text{m}\mu$ - 2 hr; 546 $\text{m}\mu$ - 3 hr. Conclusion: The closer the wavelength of light incident upon the substance is to the absorption maximum of this substance, the more intense is its decomposition. Daylight has a particularly destructive effect upon nitroalkanes. The effect of electric

Card (1/2)

KHMEI'NITSKIY, L.I.; NOVIKOVA, T.S.; NOVIKOV, S.S.

Oxidation of aromatic amines by trifluoroperacetic acid.

Izv.AN SSSR.Otd.khim.nauk no.3:516-517 Mr '62. (M.RA 15:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Amines) (Peroxyacetic acid)

OKHLOBYSTINA, L.V.; FAYNZIL'BERG, A.A.; NOVIKOV, S.S.

Improved methods for producing 1,6-dinitroalkanes. Izv.AN
SSSR.Otd.khim.nauk no.3:517-518 Mr '62. (MIRA 15:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins) (Nitro compounds)

NOVIKOV, S.S.; SLOVETSKIY, V.I.; BELIKOV, V.M.; ZAVILOVICH, I.M.;
YEPISHINA, L.V.

Spectrophotometric study of dissociation constants of
1,1-dinitropentane, 1,1-dinitrohexane, and 1,1-dinitrodecane.
Izv.AN SSSR.Otd.khim.nauk no.3:520-523 Apr '62. (MIRA 15:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitro compounds) (Ionization) (Spectrophotometry)

MAYRANOVSKIY, S.G.; BELIKOV, V.M.; KORCHEMNAYA, TS.B.; NOVIKOV, S.S.

Mechanism of reduction of nitro compounds on the dropping
mercury electrode. Izv.AN SSSR.Otd.khim.nauk no.3:523-525
Mr '62. (MLRA 15:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitro compounds) (Reduction, Electrolytic)

NOVIKOV, S.S.; SLOVETSKIY, V.I.; SHEVELEV, S.A.; FAYNZIL'BERG, A.A.

Spectrophotometric determination of the dissociation constants
of aliphatic nitro compounds. Izv.AN SSSR Otd.khim.nauk no.4:
593-605 Ap '62. (MIRA 15:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitro compounds) (Dissociation)

BELIKOV, V.M.; MAYRANOVSKIY, S.G.; KORCHENNAYA, TS.B.; NOVIKOV, S.S.

Tautomerism of nitro compounds. Report No.4: Mechanisms of
tautomeric transformations of nitro compounds. Izv.AN SSSR
Otd.khim.nauk no.4:605-614. Apr '62. (MIRA 15:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo.
(Nitro compounds) (tautomerism)

IVANOVA (Korsakova), I.S.; IONOVA, Yu.V.; NOVIKOV, S.S.

Addition of ethylenedinitrodiamine to nitroalkenes. Izv. Akad. Nauk SSSR.
Otd.khim.nauk no.5:20-21 May '62. (MIRA 15:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN S.S.R.
(Ethylenediamine) (Olefins)

IVANOVA (Korsakova), I.S.; BULATOVA, N.M.; BOVIEV, S.S.

Addition of nitroacetic acid esters to α,β -unsaturated ketones.
Izv. AN SSSR. Otd.khim.nauk no.5 921-922 (1964). (MIRA 5:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo M.U.S.S.R.
(Acetic acid) (Ketones)

SLOVETSKIY, V.I.; FAYNZIL'BERG, A.A.; NOVIKOV, S.S.

Quantitative correlation between the induction constants of radical-substituents and physicochemical properties of nitro compounds. Izv.AN SSSR, Otd.khim.nauk no. 6:989-995 '62.

(MIRA 15:8)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitro compounds) (Radicals (Chemistry))

NOVIKOV, S.S.; BELIKOV, V.M.; YEPISHINA, L.V.

Action of chlorinating agents on nitrodiols. Izv.AN SSSR.Otd.-
khim.nauk no.6:1111-1116 '62. (MIRA 15:8)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ethanediol) (Chlorination)

SLOVETSKIY, V.I.; SHEVELEV, S.A.; YERASHKO, V.I.; FAYNZIL'BERG, A.A.;
NOVIKOV, S.S.

Structure of salts of 1,1-dinitroalkanes and trinitromethane.
Izv.AN SSSR.Otd.khim.nauk no.6:1126 '62. (MIRA 15:8)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins--Spectra)

SLOVETSKIY, V.I.; TARTAKOVSKIY, V.A.; NOVIKOV, S.S.

Synthesis of organomercury nitro compounds. Report No.7.
Problem of tautomerism of the trinitromethane mercury salt.
Izv.AN SSSR.Otd.khim.nauk no.8:1400-1405 Ag '62. (MIRA 15:8)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Nitroform) (Mercury organic compounds; (Tautomerism)

S/C62/62/OCC/008/015/016
B117/B180

AUTHORS: Novikov, S. S., and Sevost'yanova, V. V.

TITLE: Synthesis of alkyl silanes with a nitro-group in the γ -position

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 6, 1962, 1485-1486

TEXT: The addition between substituted silanes (trichloro-, methyl dichloro-, ethyl dichloro-, diethyl chloro- and triethylsilane) and unsaturated nitro-compounds (nitro-ethyls and β -nitropropene-1) was investigated. with the aim of finding a better synthesis for organo-silicon nitro-compounds. Chloro platonic acid in i-propyl alcohol was used as a catalyst. Autoclave experiments at atmospheric and high pressures showed that pressure changes have hardly any effect on the composition of the products. The nitro ethyls reacted extremely vigorously with Cl_3SiH or $\text{CH}_3\text{SiHCl}_2$, H and HCl being liberated with methyl dichlorosilane; however 1-chloro-2-nitro ethane and unidentified polymers

Card 1/2

Synthesis of alkyl silanes ...

S/062/62/000/008/015/016
B117/B180

were isolated, and not the product expected. Heating 3-nitro prop-1-ene with Cl_3SiH , $\text{CH}_3\text{SiHCl}_2$ and $\text{C}_2\text{H}_5\text{SiHCl}_2$ (to 75°C) produced, the corresponding adducts in satisfactory yield. The γ -nitro-propyl dichloro-silanes synthesized are colorless, viscous compounds, hydrolyzing rapidly in air. The reaction products of 3-nitro propene-1- decompose with liberation of gas. No reaction occurs between $(\text{C}_2\text{H}_5)_3\text{SiH}$ and 3-nitro propene-1. The activity of the substituted silanes diminished with the number of chlorine atoms: $\text{Cl}_3\text{SiH} > \text{CH}_3\text{SiHCl}_2 > (\text{C}_2\text{H}_5)_2\text{SiHCl}$.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: Februar 22, 1962

Card 2/2

IVANOVA, I.S.; KONNOVA, Yu.V.; NOVIKOV, S.S.

Syntheses of methyl ester of α -nitrocrotonic acid. *Izv. AN SSSR. Otd. khim. nauk* no.9:1677-1679 S '62. (MIRA 15:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Chrotonic acid)

SHLYAPOCHNIKOV, V.A.; SHEVELEV, S.A.; YERASHKO, V.I.; FAYNZIL'BERG, A.A.;
NOVIKOV, S.S.

Intensity of stretching N-O vibrations in nitro-alkanes and halogenated
nitro alkanes. Izv.AN SSSR.Otd.khim.nauk no.9:1684-1686 S '62.
(MIRA 15:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins—Spectra)

IVANOVA, I.S.; KONNOVA, Yu.V.; BULATOVA, N.N.; NOVIKOV, S.S.

Addition of 3,3,5,5-tetranitropiperidine to α, β -unsaturated compounds.
Izv. AN SSSR. Otd. khim. nauk no. 9: 1686-1688 S. 1962. (MIRA 15:10)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Piperidine) (Unsaturated compounds)

NOVIKOV, S.S.; BABIYEVSELY, K.K.; SHEVELEV, S.A.; IVANOVA, I.S.; FAYNZIL'BERG, A.A.

Synthesis of 1,1,1,3,-tetranitro-2-alkylpropanes and their cleavage
by the action of bases. Izv. AN SSSR.Otd.khim.nauk no.10:1853-1855
0 '62. (MIRA 15:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Propane) (Bases (Chemistry))

IVANOVA, I.S.; BULATOVA, N.N.; NOVIKOV, S.S.

Addition of tetranitroalkanes to α,β -unsaturated ketones. Izv. AN SSSR.
Otd.khim,nauk no.10:1856-1858 1962. (MIRA 15:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins) (Ketones)

IVANOVA, I.S.; BULATOVA, N.M.; NOVIKOV, S.S.

Ethylenedinitrodiamine in the reaction of addition to α,β -unsaturated ketones. Izv. AN SSSR.Otd.khim.nauk no.10:1858-1859 0 '62. (MIRA 15:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ethylenediamine) (Ketones)

L2650

S/062/62/000/011/015/021

B117/B101

AUTHORS: Ivanova, I. S., Korneva, Yu. V., and Novikov, G. S.

TITLE: Addition of gem-dinitroalkanes to unsaturated nitro-compounds

PERIODICAL: Khim. i tekhn. Oshch. Investiya. Otdeleniye Khimicheskikh Nauk, No. 11, 1962, 1001-1004

TEXT: The nucleophilic addition of 1,1-dinitropropane, 1,1-dinitrobutane to 2,2,2-trinitroethyl acrylate was examined in order to ascertain the reactivity of the double bond in acryl esters of nitro-alcohols. The reaction at room temperature in methanol and in the presence of catalytic amounts of sodium methylate resulted in the following compounds: (1) The 2,2,2-trinitroethyl ester of 1,1-dinitropropane was obtained from 1,1-dinitropropane and 2,2,2-trinitroethyl acrylate; m.p. 33-34°C, yield 11.1%; (2) the 2,2,2-trinitroethyl ester of 1,1-dinitrobutane was obtained from 1,1-dinitrobutane and 2,2,2-trinitroethyl acrylate; m.p. 49-50°C, yield 17.1%. For comparison, the same gem-dinitroalkanes were added to 1-nitroalk-1-enes, whereby the following compounds were obtained for the first time: (1) 1,1,1-trinitro-2-methylpentane,

Card 1/2

Addition of gem-dinitroalkanes...

0.067/62/000 017/01- 021
B117/B101

b.p. 109-110.5°C (1 mm Hg), n_D^{20} 1.4777, from 1,1-dinitropropane and 1-nitrohexene-1 in a yield of 4.2%. [1,1,1-trinitro-2-ethyl pentane-2 b.p. 140-150.5°C (2 mm Hg), n_D^{20} 1.4764, from 1,1-dinitropropane and 1-nitroheptene-1 in a yield of 7.1%. [1,1,1-trinitro-2-n-propyl pentane-2 b.p. 141-155°C (1 mm Hg), n_D^{20} 1.4770, from 1,1-dinitropropane and 1-nitrooctene-1 in a yield of 8.1%. The yields of the products obtained indicate that the double bonds in nitroalkenes are more reactive than the double bond in the esters of unsaturated acids and nitro-alcohols.

ASSOCIATION: Institut N. D. Zhukovskiy Khimii im. N. D. Zelinskogo Akademii Nauk USSR (Institute of Organic Chemistry named N. D. Zelinskii of the Academy of Sciences USSR)

SUBMITTED: June 13, 1962

Card 2/2

BELIKOV, V.M.; MAYRANOVSKIY, S.G.; KORCHEMNAYA, TS.B.; NOVIKOV, S.S.

Kinetic polarographic currents of the recombination of anions of
nitro compounds. Izv. AN SSSR. Otd.khim.nauk no.11:2103 N '62.
(MIRA 15:12)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR i
Institut elementoorganicheskikh soyedineniya AN SSSR.
(Nitro compounds) (Polarography)

IVANOVA, I. S.; BOGDANOVA, G. F.; ALEKSEYEVA, T. A.; NOVIKOV, S. S.

Synthesis of dinitrodiazodicarboxylic acids. Izv. AN SSSR Otd.
khim. nauk no.12:2236-2238 D '62. (MIRA 16:1)

1. Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR.

(Acids, Organic) (Diaso compounds)

NOVIKOV, S.S.; SEVOST'YANOVA, V.V.; FAYNZIL'BERG, A.A.

Characteristic chemical properties of organic compounds containing positive halogen. Usp.khim. 31 no.12:1417-1436 D '62.
(MIRA 16:2)

1. Institut organicheskoy khimii AN SSSR imeni N.D.Zelinskogo.
(Organic compounds) (Halogens)

NOVIKOV, S.S.; SLOVETSKIY, V.I.; TARTAKOVSKIY, V.A.; SHEVELEV, S.A.;
FAYNZIL'BERG, A.A.

On the existence of aci-forms of 1,1-dinitroalkanes and
trinitromethane. Dokl. AN SSSR. 146 no.1:104-106 S '62.

(MIRA 14:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
Predstavleno akademikom M.I. Kabachnikom.
(Paraffins) (Nitro compounds)

S/062/63/000/001/007/025
B101/B166

AUTHORS: Slovetzkiy, V. I., Shevelev, S. A., Yerashko, V. I.,
Paynzil'berg, A. A., and Novikov, S. S.

TITLE: Spectrometric structural analysis of the salts of
1,1-dinitro alkanes and trinitro methane

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye Khimicheskikh
nauk, no. 1, 1963, 57-63

TEXT: A comparative study was made of the IR spectra of the lithium, potassium sodium and ammonium salts of 1,1-dinitro methane, 1,1-dinitro ethane, 1,1-dinitro propane, 1,1-dinitrobutane, 1,1-dinitro pentane, 1,1-dinitro hexane, 1,1-dinitrodecane, and trinitro methane, in order to elucidate their structures. Results: All 1,1-dinitro alkanes have bands at 1450, 1210, and ~ 1120 cm^{-1} , but no bands characterizing the stretching vibrations of N-O in the noncharged NO_2 groups exist in the spectra of any of the compounds. The spectra of the salts show neither the two bands in the region of 800-900 cm^{-1} that are found in free gem-dinitro alkanes, whereof at least one is caused by the stretching vibra-
Card 1/2

Spectrometric structural ...

S/062/63/000/001/007/025
B101/B106

tions of the C-N bond, nor bands characteristic of the C=O bond. The nature of the cation has no effect on the spectrum except that in ammonium salts additionally NH_4^+ -ion bands appear as well as a weak 1580 cm^{-1} band produced by hydrolysis. Conclusion: All nitro groups are equivalent and participate similarly in the formation of the anion. Hence, the formulas of the salts are $[\text{RC}(\text{NO}_2)_2]^- \text{M}^+$ and $[\text{C}(\text{NO}_2)_2]^- \text{M}^+$. No carbanions are present. There are 2 figures and 5 tables. The most important English-language references are: N. Jonathan, J. Molecul. Spectra, 7, 105 (1961); L. S. Kissinger, H. E. Ungnade, J. Organ. Chem., 25, 1471 (1960).

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR
(Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED: March 20, 1962

Card 2/2

NOVIKOV, S.S., kand. ekon. nauk

Modernization of the equipment and its economic effectiveness in the
textile industry. Uch. zap. Shkol. gos. ped. inst. no. 10-55, Feb. '63.
(MIRA 18-1)

NOVIKOV, S.S.; SEVOST'YANOVA, V.V.; YEPISHINA, L.V.

Synthesis of nitroalkyl siloxanes. Izv. AN SSSR Ser.khim. no.10:
1860-1861 O '63. (MIRA 17:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.